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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/963,344	09/25/2001	Hugh L. Brunk	P0351	9752
23735	7590	11/12/2004	EXAMINER	
DIGIMARC CORPORATION 9405 SW GEMINI DRIVE BEAVERTON, OR 97008			LU, TOM Y	
			ART UNIT	PAPER NUMBER
			2621	

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/963,344	Applicant(s) BRUNK ET AL.	
	Examiner Tom Y Lu	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Cass et al (U.S. Patent No. 5,946,414).

- a. Referring to Claim 1, Cass discloses providing a first multicolor approximation of the spot color (image regions 44 and 46 as shown in figure 6 is the claimed “spot color”, which correspond to the pixels 43 and 45 in the original carrier image I, the first multicolor approximation is to assign approximate color values to these two regions, c_1 and c_2 after upsampling operation 310, column 17, lines 5-10); based at least in part on the first multicolor approximation, providing multicolor components including a digital watermark signal (the message image M, which is digital watermark in Cass, is provided in the representation of $\pm \delta$, column 17, line 15); and combining a percentage of the spot color with the multicolor components ($\pm \delta$ is the percentage amount of the spot color with the multicolor components of cyan, magenta and yellow, column 15, line 6, column 17, line 18, $c \pm \delta$, also see figures 8 and 9).

- b. Referring to Claim 2, Cass discloses wherein the first multicolor approximation comprises cyan, magenta and yellow components (column 15, line 6).

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- c. Referring to Claim 3, Cass discloses wherein the multicolor components comprises cyan, magenta and yellow components (column 15, line 6, and column 17, lines 59-60).
- d. Referring to Claim 4, Cass discloses wherein the percentage of the spot color comprising a halftone screening of the spot color (printing using dot screen is halftone screen, column 15, line 11, also see figure 2).
- e. Referring to Claim 5, Cass discloses wherein the wherein said combining step comprises a halftone screening process (see figures 7-9).
- f. Referring to Claim 6, Cass discloses further comprising the step of providing an initial multicolor approximation, prior to the first multicolor approximation, wherein said first multicolor approximation is provided from the initial multicolor approximation (upsampling the original carrier image I is considered as initial approximation herein, and the first approximation operation of assigning color values of c_1 and c_2 is based on the upsampled carrier image).
- g. Referring Claim 7, Cass discloses wherein said initial multicolor approximation comprises cyan, magenta, yellow and black components (column 15, line 6).
- h. With regard to Claim 8, see explanation in Claim 2.
- i. With regard to Claim 9, see explanation in Claim 4.
- j. With regard to Claim 10, see explanation in Claim 5.
- k. Referring to Claim 11, Cass discloses further comprising the step of printing the combined spot color percentage and the multicolor components (column 8, lines 41-42).

- l. Referring to Claim 12, Cass discloses screening a spot color; and combining the screened spot color with multicolor components, the multicolor components including hidden data (the spot color c_1 is upsampled screened, see figure 6, and combined with multicolor components of $\pm \delta$, which includes hidden message data M).
- m. With regard to Claim 13, see explanation in Claim 2.
- n. With regard to Claim 14, see explanation in Claim 5.
- o. Referring to Claim 15, Cass discloses a step of determining a percentage level for screening of the spot color (the percentage is δ).
- p. Referring to Claim 16, Cass discloses wherein said determining step comprises proving a fixed percentage for the spot color, and combining the fixed percentage for each pixel in an area comprising the spot color (δ is the fixed percentage, and the each pixel in an area is combined with $\pm \delta$, see figures 7-9).
- q. Referring to Claim 17, Cass discloses wherein said determining step comprises providing a percentage so as to render at least one of the multicolor components approximate zero (column 17, line 59, Cass teaches the modulation is in the yellow-blue direction, which renders the color red/magenta zero).
- r. Referring to Claim 18, Cass discloses wherein at least one multicolor component comprises zero (see explanation in Claim 17, color of red/magenta is zero).
- s. Referring to Claim 19, Cass discloses a paper product comprising an image printed thereon, the printed image including a combination comprising a halftone-screening of a spot color ink, and at least cyan, magenta and yellow inks, wherein the cyan, magenta and yellow inks include a digital watermark signal (Cass teaches a printed

encoded image on the paper, column 29, lines 25-28, which a message M, acted as a digital watermark, is embedded in colors of cyan, magenta and yellow, column 15, line 6, and the combining process of message M onto carrier I to create the encoded image includes halftone-screening, see figures 7-9, also figure 48).

t. Referring to Claim 20, Cass discloses approximating the spot color with cyan, magenta, and yellow components (column 17, lines 50-51, the colors of subregions in the carrier image I are determined for modulation, and the colors are cyan, magenta and yellow, column 15, line 6); modulating the cyan, magenta, and yellow components to include a digital watermark (column 17, lines 53-55, subregions of the carrier image I is modulated to include digital watermark information of δ); combining the modulated cyan, magenta and yellow components with a scaled spot color component and applying the combined components to a medium (the digital watermark information $\pm \delta$ is added to the subregions, and printed to a medium of paper, column 29, lines 25-28).

u. Referring to Claim 21, Cass discloses wherein said approximating step includes approximating the spot color with a black component (column 15, line 6).

v. Referring to Claim 22, see explanation in Claim 21.

w. Referring to Claim 23, Cass discloses screening the spot color to a percentage of its original intensity; and modulating a set of pixels within the spot color area to comprises a watermark signal (column 17, lines 51-62, the spot color area is the subregions of the carrier image I, and the intensity is the color magnitude of the pixels within the sub-regions, and the digital watermark signal is δ).

- x. Referring to Claim 24, Cass discloses wherein the watermark signal comprises negative intensity adjustments and positive intensity adjustments ($\pm \delta$, column 17, line 53, also see figure 2).
- y. Referring to Claim 25, Cass discloses wherein the mean of a set comprising the negative intensity adjustments and the positive intensity adjustments comprises zero (the mean of the adjustments in figure 8 is zero).
- z. Referring to Claim 26, Cass discloses wherein an average of the negative intensity adjustments is greater than an average of the positive intensity adjustment (the average of the intensity adjustments depends on the pattern and the area of the adjustments, for example, the area 805 in figure 44 has an average intensity adjustments greater than an average of the negative adjustments, and the area below 805 is the opposite).
- aa. With regard to Claim 27, see explanation in Claim 27.
- bb. Referring to Claim 28, Cass discloses wherein said modulating step comprises modulating the set of pixels to a predetermined watermark signal level (the predetermined signal level is δ).
- cc. Referring to Claim 29, Cass discloses wherein said modulating step comprises modulating the set of pixels in a dynamic range (the dynamic range is in yellow-blue direction, column 17, line 59).

Conclusion

- 2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
 - a. Cass et al, U.S. Patent No. 5,684,885, see figure 6.

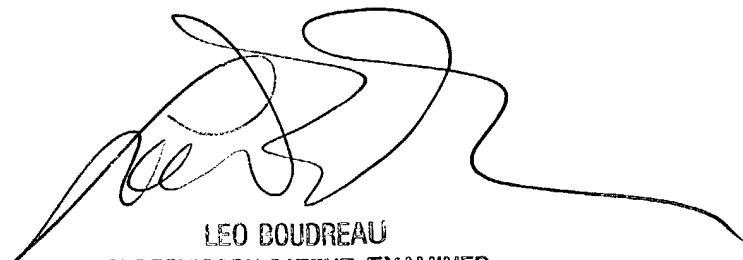
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- b. Cass et al, U.S. Patent No. 6,023,525, see column 3.
 - c. Wang et al, U.S. Patent No. 6,731,409 B2, see columns 3-4.
 - d. Curry et al, U.S. Patent No. 5,946,103, see column 2, lines 20-36
3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Y Lu whose telephone number is (703) 306-4057. The examiner can normally be reached on 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Y. Lu



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